

CHAPTER 1

GENERAL

1-1. Purpose

This manual establishes structural design criteria for structures other than buildings, furnishes design guidance for various types of structures, and identifies special considerations with regard to certain materials in specific applications.

1-2. Scope

Structures other than buildings which are covered by this manual include the following: bridges; dock and harbor facilities; drainage structures; bulk material structures; water and wastewater structures; and mechanical, electrical, and communication structures. Types of structures not covered include dams and pavements for which guidance can be found in other manuals. These criteria apply to all groups and agencies responsible for the design of military facilities.

1-3. References

Appendix A contains a list of references used in this document.

1-4. Special designs

Prior approval for special designs will be obtained from the appropriate headquarters (HQUSACE (CEMP-ET) WASH, DC 20314-1000 for Army projects; and HO, USAF/CECE, Boiling AFB, WASH, DC 20332-5000 for Air Force projects). The request for approval will contain a complete statement of the reasons for using such a system, including competitive costs, proposed special criteria and controls as applicable, performance history or tests (if available), the use of a recognized structural consultant for the design of the

unusual structures, and other pertinent data. The approval will apply to the specific project for which the special design use was requested and will not apply to other projects involving a similar application.

1-5. Overseas construction

Where local material of grades other than those referenced herein are to be used, working stresses, yield strengths, and details of construction will be modified as necessary to reliably represent the performance of the local material. Local material will be of equivalent or better grade than comparable materials referenced herein.

1-6. Stability

Unless noted otherwise, stability relates to sliding, overturning, buoyancy, and other sources of gross displacement and not to stability as related to buckling. Except for foundation elements, a structure or any of its elements will be designed to provide a minimum safety factor of 2.0 against failure by sliding, overturning, or uplift. This required degree of stability will be provided solely by the dead load plus any permanent anchorage. When load combinations are specified in the design standards to maximize potential uplift, the specified load factor on dead load is less than 1.0 (usually + 0.9), and this load factor will be used for stability calculations.

1-7. Basic design reference

TM 5-809-2/AFM 88-3, Chapter 2 will be the basic reference for design of structures other than buildings.